

CLAIMS

1. A device for automatically determining the shade of an object (10), including a light source, a light sensor positioned so as to sample on a area of the object, light  
5 reflected or passing through the object (20, 30, 40), further comprising means for wavelength analysis on this light after reflection or passing through the object, these means delivering a spectrometric reading corresponding to the sampling area, characterized in that the analysis means are  
10 provided for analyzing a set of such spectrometric readings corresponding to different areas (20, 30, 40) of the object (10) and identifying an average spectrometric reading from this set of spectrometric readings.

15 2. The device according to claim 1, characterized in that it comprises means provided for automatically displacing the light sampling area over an extended area of the surface of the object.

20 3. The device according to claim 1 or claim 2, characterized in that the device is provided for sampling light in a plurality of points (20, 30, 40) over a surface having a relief.

25 4. The device according to any of the preceding claims, characterized in that the device further includes a camera and means for displaying an image of the object (10) as sampled by the camera, as well as means for plotting on this image a series of shades sampled at said series of sampling points  
30 (20, 30, 40), at their corresponding location on the object (10) displayed on the screen.

5. The device according to claim 4, characterized in that it includes means allowing a user to perform a spatial  
35 selection of the object represented on the screen, means being provided for expressing this spatial selection as a selection

of sampling points from light samplings performed on these points specifically positioned in this spatial selection, and for calculating the global shade from light samplings performed on these points.

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6. The device according to any of the preceding claims, characterized in that it is intended for determining the shade of a tooth (10).

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7. The device according to any of the preceding claims, characterized in that it includes means for displacing a spectrometric sensor along a sampling line (30, 40) extending over the object (10).

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8. The device according to any of the preceding claims, characterized in that it comprises means for using the average spectrometric reading in order to define the shade of a material subsequently added to the object (10).

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9. A method for determining the shade of an object (10), comprising the step consisting of illuminating the object (10), the step consisting of sampling the light after reflection or passing through the object, the step consisting of analyzing wavelengths of the light after reflection or passing through, in order to establish a spectrometric reading of a relevant area of the object (10), the step consisting of inferring from this analysis a shade of the object, characterized in that the step consisting of sampling light in different areas (20, 30, 40) of the object (10), the step consisting of analyzing a set of sampled wavelengths in different areas (20, 30, 40) for establishing a plurality of spectrometric readings corresponding to these different areas, and then the step consisting of identifying an average spectrometric reading from this set of spectrometric readings, are applied.

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10. The method according to claim 9, characterized in that it is applied to the determination of the shade of a tooth (10).

5        11. The method according to claim 10, characterized in that the plurality of points describes at least one segment (30) orientated longitudinally to the tooth (10), i.e., substantially perpendicularly to the gum.

10        12. The method according to claim 10 or claim 11, characterized in that at least one portion of the plurality of sampling points (20, 30, 40) describes a segment (40) substantially aligned with the gum, i.e., perpendicularly to the main axis of the tooth (10).

15        13. The method according to any of claims 9 to 12, characterized in that it comprises the step consisting of displacing a spectrometric sensor along a sampling line (30, 40) extending over the object (10).

20        14. The method according to any of claims 9 to 13, characterized in that it comprises the step consisting of using the average spectrometric reading for defining the shade of a material subsequently added to the object (10).